Claims

What is claimed is:

1. A method of simulating the operation of an electronic system comprising a plurality of circuit elements, utilizing a software-based development tool, the method comprising the steps of:

5   providing in the software-based development tool an interface permitting user control of one or more configurable parameters of the electronic system; and

automatically generating a simulation configuration for the electronic system based on current values of the configurable parameters;

the simulation configuration being generated without requiring further user input;

10   the simulation configuration specifying interconnections between the circuit elements which satisfy the current values of the configurable parameters.

2. The method of claim 1 wherein at least a subset of the circuit elements each comprise one or more integrated circuits.

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3. The method of claim 1 wherein the electronic system comprises a multistage switch fabric.

4. The method of claim 3 wherein the circuit elements comprise at least two ingress devices,

20   at least one cross-connect device and at least two egress devices.

5. The method of claim 1 wherein the circuit elements comprise integrated circuits of a designated chip set utilizable in the electronic system.

25   6. The method of claim 1 wherein the interface includes a listing of the circuit elements and permits user control of one or more configurable parameters of each of the circuit elements.

7. The method of claim 1 wherein the interface includes a listing of a base device specified for the plurality of circuit elements and permits user control of one or more configurable parameters of the base device.

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8. The method of claim 1 wherein the configurable parameters comprise a switching capacity of the electronic system.

9. The method of claim 1 wherein the configurable parameters comprise a configuration type of the electronic system.

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10. The method of claim 9 wherein the user interface permits user selection of one of a centralized configuration, a stackable configuration and a distributed configuration for a multistage switch fabric of the electronic system.

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11. The method of claim 1 wherein the configurable parameters comprise a number of ports of the electronic system.

12. The method of claim 1 wherein the software-based development tool comprises an automatic configuration generation module which generates the simulation configuration for the

20   electronic system based on the current values of the configurable parameters.

13. The method of claim 1 wherein the simulation configuration is generated utilizing an object-oriented programming construct comprising a base class, corresponding to a base device specified for the plurality of circuit elements, and an associated generation interface.

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14. The method of claim 13 wherein the generation interface declares a generate function that is implemented by each of a plurality of generators, each of the plurality of generators corresponding to a different configuration of the electronic system.

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15. The method of claim 14 wherein the plurality of generators comprises a centralized configuration generator, a stackable configuration generator and a distributed configuration generator, corresponding to respective centralized, stackable and distributed configurations of a multistage switch fabric of the electronic system.

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16. The method of claim 1 wherein the software-based development tool runs at least in part on an information processing device comprising a processor and an associated memory.

17. The method of claim 1 wherein the software-based development tool comprises a

10 simulator control module, a set of interfaces, and circuit element modules each corresponding to an associated one of the circuit elements.

18. An apparatus for simulating the operation of an electronic system comprising a plurality of circuit elements, the apparatus comprising:

15 an information processing device having a processor and a memory;

the information processing device implementing a software-based development tool providing an interface permitting user control of one or more configurable parameters of the electronic system, the development tool being operative to automatically generate a simulation configuration for the electronic system based on current values of the configurable parameters;

20 the simulation configuration being generated without requiring further user input;

the simulation configuration specifying interconnections between the circuit elements which satisfy the current values of the configurable parameters.

19. An article of manufacture comprising a storage medium containing one or more software

25 programs for use in simulating the operation of an electronic system comprising a plurality of circuit elements, utilizing a software-based development tool, wherein the one or more software programs when executed implement the steps of:

providing in the software-based development tool an interface permitting user control of one or more configurable parameters of the electronic system; and

automatically generating a simulation configuration for the electronic system based on current values of the configurable parameters;

5   the simulation configuration being generated without requiring further user input;

the simulation configuration specifying interconnections between the circuit elements which satisfy the current values of the configurable parameters.